

WHAT IS CLAIMED IS:

1. A cartridge-type seal including an integrated contact surface and adapted to be pre-assembled to serve for sealing heavily stressed axles or shafts under tough operating conditions, especially in dirty and/or moist environments, comprising a first casing member (1) and a second casing member (2) rotatable with respect to the first one, the first casing member comprising a radial sealing lip (14) and the second casing member comprising at least one contact surface (22) against which the sealing lip (14) abuts, one (2) of the two casing members (1, 2) being keyed to the axle or shaft (4), said keyed casing member (2) being supported on a collar of the axle or shaft or on a ring (52; 9) which is keyed to the axle or shaft.
2. The cartridge-type seal as claimed in claim 1, wherein the ring is the inner race (52) of a roller bearing (5).
3. The cartridge-type seal as claimed in claim 2, wherein the ring is an intermediate ring (9) abutting against the inner race (52) of the roller bearing (5).
4. The cartridge-type seal as claimed in claim 1, wherein the second casing member (2) which is keyed to the axle or shaft comprises the contact surface (22).
5. The cartridge-type seal as claimed in claim 4, wherein the contact surface (22) is disposed on an axial leg (21) of the second casing member (2), and wherein the first casing member (1) is firmly seated in a hub (3) which is stationary with respect to the second casing member (2).
6. The cartridge-type seal as claimed in claim 5, wherein the axial leg (21) has an extension (22a) which projects axially beyond both casing members (1, 2) in the direction toward the inner race (52) of the roller bearing (5).
7. The cartridge-type seal as claimed in claim 1, wherein the first casing member (1) is provided with a stop (18) for an assembling tool (6).

8. The cartridge-type seal as claimed in claim 5, wherein the first casing member (1) is provided with an axial sealing lip (16) the face end of which is formed with a corrugation (16a), especially a sinusoidal one, which abuts against another contact surface (24) formed on a radial leg (23) of the second casing member (2).
9. The cartridge-type seal as claimed in claim 5, wherein the first casing member (1) comprises a radial protective lip (15) contacting the contact surface (22) formed on the axial leg (21), which contact surface is engaged also by the sealing lip (14).
10. The cartridge-type seal as claimed in claim 9, wherein the first casing member (1) comprises an axial protective lip (17) contacting the further contact surface (24) formed on the radial leg (23).
11. The cartridge-type seal as claimed in claim 5, wherein the second casing member (2) with its axial leg (21) is press fitted on the shaft (4) through the intermission of a rubber seat (25).
12. The cartridge-type seal as claimed in claim 5, wherein the first casing member (1) comprises a protective lip (17') contacting a contact surface (24; 27) on a radial leg (23) of the second casing member (2), and wherein the sealing lip (14) contacts a contact surface (22) on the axial leg (21) fixed on the shaft.
13. The cartridge-type seal as claimed in claim 5, wherein the axial leg (21) is press fitted on the shaft (4) forming a metallic seat over a greater part of its length, especially in the contacting area of the sealing lip (14).
14. The cartridge-type seal as claimed in claim 12, wherein the second casing member (2) comprises a sloped leg (29a) adjoining the axial leg (21) at the side of the surroundings and sloped at an angle of between 5° and 45° away from the shaft, a static rubber seal (29) being formed integrally at the sloped leg flank facing the shaft (4).
15. The cartridge-type seal as claimed in claim 14, wherein the inner diameter of the static rubber seal (29) is smaller than the inner diameter of the axial leg (21) which is press fitted on the shaft (4).

16. The cartridge-type seal as claimed in claim 1, wherein the first casing member (1) is provided with a fall-off guard embodied by an elastic nose (16b) which cooperates with a radial leg (23) of the second casing member (2).

17. An assembly system for mounting a cartridge-type seal as claimed in claim 1 on an axle or a shaft, comprising an assembly tool (6) by means of which the cartridge-type seal is pushed in controlled fashion onto the axle or shaft (4) until just before its axial terminal position, and a connecting member, especially a driving flange (7), by means of which the cartridge-type seal is brought into its axial terminal position and which may be tightened on the axle or shaft against the ring (52; 9).